



Great Northern
LANDSCAPE CONSERVATION COOPERATIVE

2010 Partner Projects Overview

In 2010, the Great Northern Landscape Conservation Cooperative (GNLCC) provided funding for 14 projects to support its goal of adding value to large landscape conservation to build resource resilience in the face of climate change and other landscape-level stressors. Nearly \$1.5 million was allocated towards transboundary, interjurisdictional science and information priorities supported by established partnerships working on landscape conservation. The GNLCC funding was combined with funding from the US Fish and Wildlife Service (Ecological Services, Fisheries, and National Wildlife Refuge System), US Geological Survey, and National Park Service. Together, these projects leverage millions of additional Federal, State, Canadian, Tribal, and non-government dollars for on-the-ground conservation.

Presented here is a brief overview of the partner projects that address the three funding themes identified as the highest priority in FY10 by the GNLCC Steering Committee: habitat connectivity, aquatic integrity, and data integration. Several projects include components that would fit under a second theme but are listed only under one. Deliverables such as tools and results are being made available by partner project sponsors and the GNLCC upon project completion.

Ultimately these science, tools, and data fit together into a regional information base to support collaborative landscape conservation. Please consider how the landscape conservation efforts of your partnership, agency or organization align with these efforts towards a collective landscape vision. The GNLCC is supporting these projects as well as related work through coordination, collaboration, and capacity. If you are interested in being part of the GNLCC and working together, please contact us.

HABITAT CONNECTIVITY
AQUATIC INTEGRITY
DATA INTEGRATION



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Habitat Connectivity

USFWS

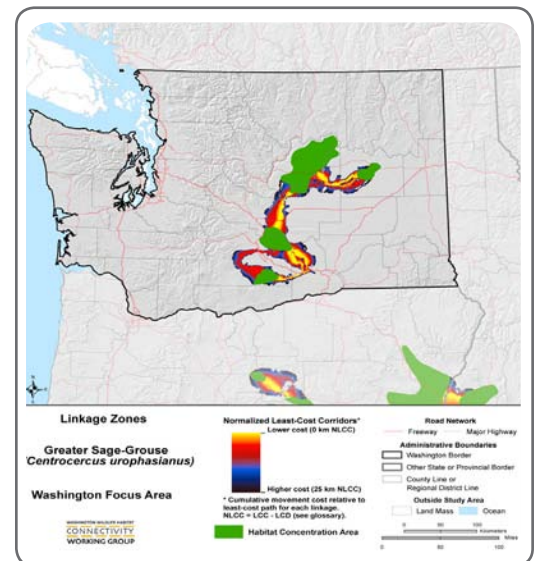
1

Washington Connected Landscapes Project–Part I: Supporting Connectivity Conservation Now and Under Future Climates and Part II: Model Validation

Part I of this project is to develop a framework to address the interacting impacts of habitat fragmentation and climate change on ecological systems and wildlife species. The framework includes analysis and decision support tools for connectivity conservation and climate adaptation, rigorous tests of emerging conservation and planning strategies, and connectivity analyses that will describe current resource conditions in Washington and adjacent landscapes and project future climate scenarios. Part II of this effort will use species occurrence, movement, and genetic data to validate statewide and ecoregional connectivity models developed in Part I. Results will support the development of landscape-scale conservation plans.

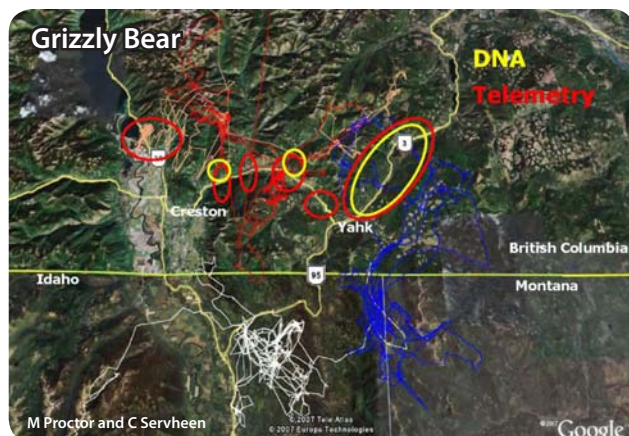
Project contact: Joanne Schuett-Hames, Washington Department of Fish and Wildlife; Joanne.Schuett-Hames@dfw.wa.gov

Partnership: Washington Habitat Connectivity Working Group | <http://waconnected.org>



2

Document Fine Scale Linkage Areas and Conservation Delivery in the Northern Rockies of U.S. and Canada



This initiative will secure landscape-scale movement opportunities for large carnivores in the Rocky Mountains of Montana and Idaho, and adjacent areas of British Columbia and Alberta. Wildlife linkage locations will be identified across highways 1, 2, 200, 95 and I-90 in northwest Montana and north Idaho. Conservation delivery will be implemented with partners to make these highways and associated public and private lands more permeable to wildlife.

Project contact: Chris Servheen, US Fish and Wildlife Service; chris_servheen@fws.gov

Partnership: Interagency Grizzly Bear Committee | www.igbconline.org; Grizzly Bear and Wolverine Working Group

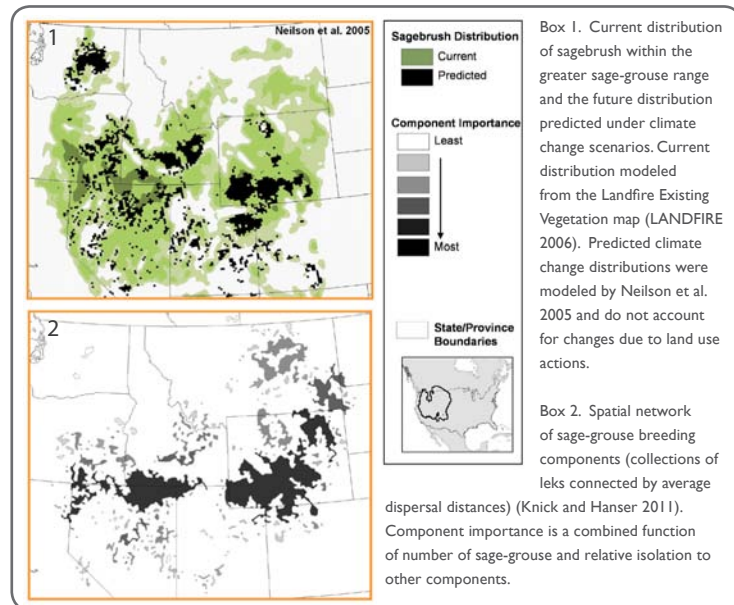
Habitat Connectivity

3

Long-term Changes in Environmental Characteristics Required by Sage-Grouse Predicted Under Climate Change

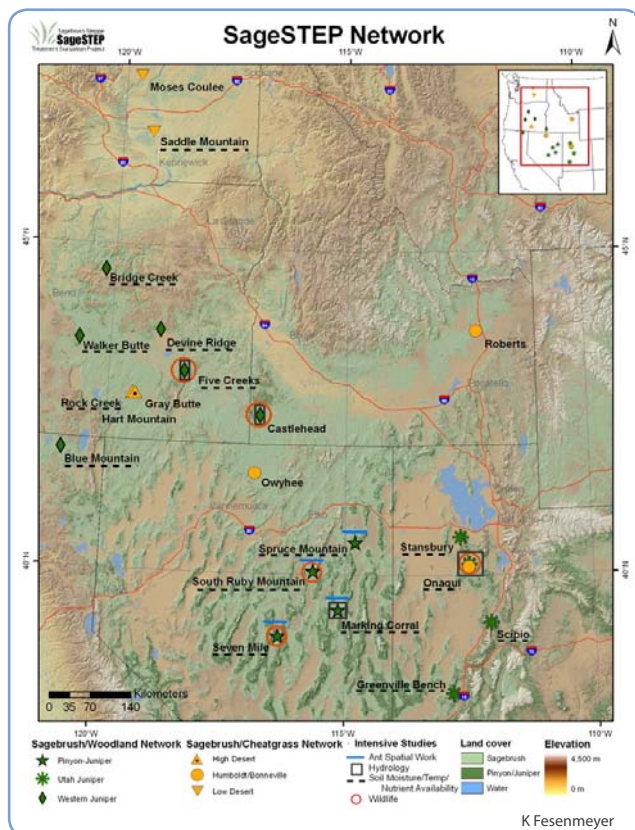
Through model development and analyses of genetic variation, this project will identify sage-grouse populations at risk of extinction within the GNLCC based on their relative isolation from neighboring populations and core regions of the sage-grouse distribution, and landcover changes predicted under global climate change models. Project results will benefit management agencies by focusing regional conservation and land management options in regions likely to sustain functioning sagebrush ecosystems.

Project contact: Steven Knick, USGS Forest and Rangeland Ecosystem Science Center; steve_knick@usgs.gov



4

SageSTEP Long Term Ecological Monitoring Project



As part of the Sagebrush Steppe Treatment Evaluation Project (SageSTEP), this effort will monitor vegetation, fuels, wildlife, insects, and weather at 10 sites, all of which have been treated to reduce either juniper encroachment (woodland sites) or cheatgrass invasion (sagebrush/cheatgrass sites). Monitoring of treatment response over the long term will lead to a better understanding of the extent to which managers can manipulate vegetation, fuels, and wildlife habitat in the context of climate change.

Project contact: James McIver, Oregon State University; james.mciver@oregonstate.edu

Partnership: SageSTEP | <http://www.sagestep.org>

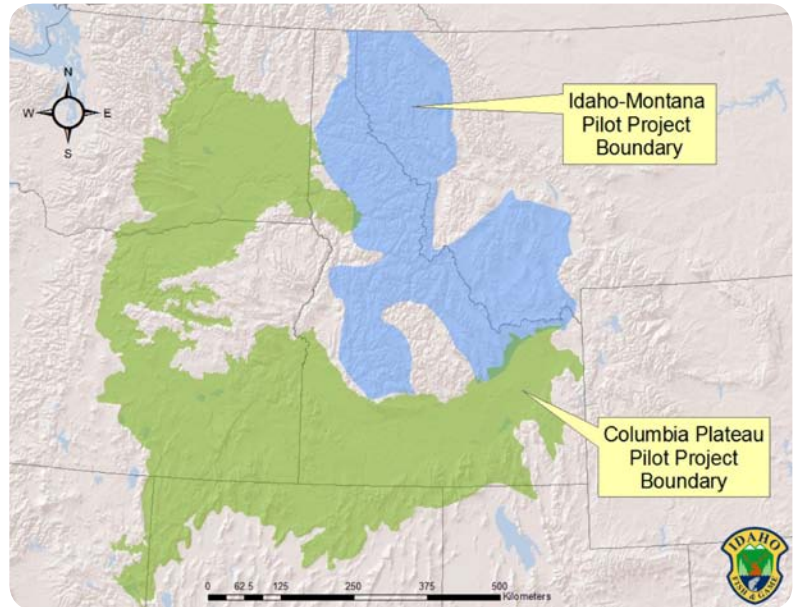
Habitat Connectivity

5 Transboundary DSS to Guide and Implement Conservation, Land Use, Energy, Transportation, and Climate Change Management and Monitoring

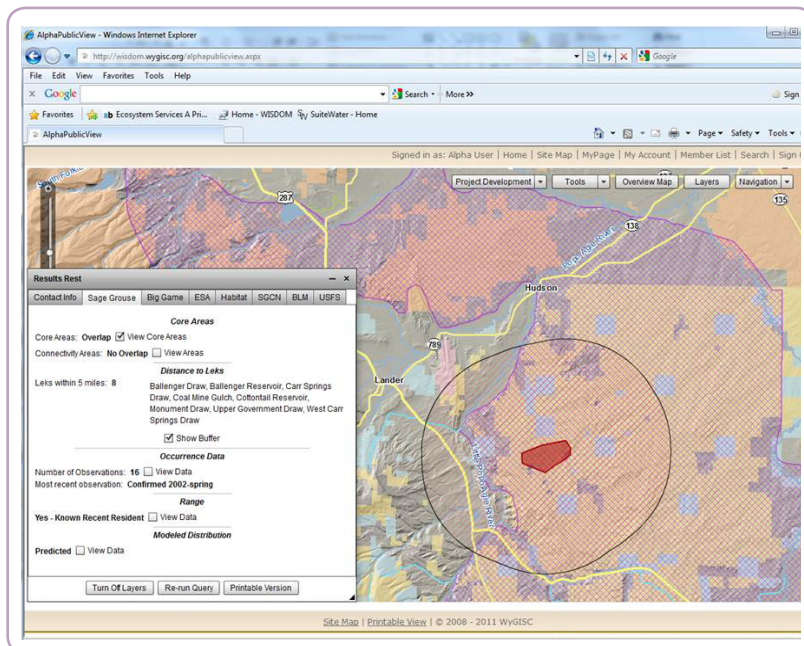
A combination of two pilot projects initiated and funded by the Western Governors' Association for development of a Decision Support System, this project will establish a useful and consistent source of mapped biological information that decision makers and the public can use to identify and understand crucial wildlife habitats and corridors. This information will be compiled so as to be available and useful to anyone assessing proposed energy, land use, transportation, and climate change management and monitoring decisions and strategies.

Project contact: Gregg Servheen, Idaho Department of Fish and Game; gregg.servheen@idfg.idaho.gov

Partnership: Western Governors' Association | www.westgov.org



6 Wyoming Interagency Spatial Database and Online Management Tools for Wildlife



As a Western Governors' Association Decision Support System pilot project, the Wyoming Game and Fish Department is building a wildlife mapping tool that will function seamlessly across all political jurisdictions within the state. It will include a centralized database for housing important wildlife information and will make that information publicly available to help identify areas where development, particularly energy development, can occur with minimal impacts to wildlife.

Project contact: Kirk Nordyke, Wyoming Game and Fish Department; kirk.nordyke@wgf.state.wy.us

Partnership: Western Governors' Association | www.westgov.org



Aquatic Integrity



J Sartore

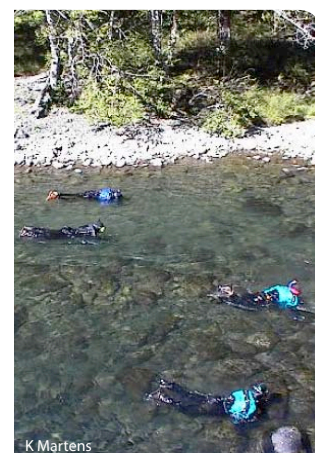
7 Forecasting the Impacts of Climate Change in the Columbia River Basin: Threats to Fish Habitat Connectivity

This study will use data of fish growth, distribution and movement, foodweb, river flow, and water temperature to develop spatially-explicit bioenergetics models to assess effects of climate change on the viability of resident salmonid populations based on models being developed by USGS. The bioenergetics models will integrate climate-change driven alterations in the physical environment, changes in food availability from the perspective of fish as prey and predators, fish movements within the Methow River and into the Columbia River, and the growth of individuals. These variables will be used to examine possible changes in population dynamics.

Project contact: Alec Maule, US Geological Survey; amaule@usgs.gov



JR Bellmore



K Martens

8 Predicting Effects of Climate Change on Aquatic Ecosystems: Combining Vulnerability Assessments, Landscape Genomics, and Modeling for Conservation



Within the transboundary Flathead River watershed, this research will apply new and existing techniques for combining downscaled climate spatial data with fine-scale aquatic species vulnerability assessments (aquatic invertebrates to fish), population genetic data, and remotely sensed riparian and aquatic habitat analysis. Results may be used to identify populations and habitats most susceptible to the impacts of climate change; develop monitoring and evaluation programs; inform future research needs; and develop conservation delivery options in response to climate change and invasive species and other land stressors.

Project contact: Clint Muhlfeld, US Geological Survey; cmuhlfeld@usgs.gov

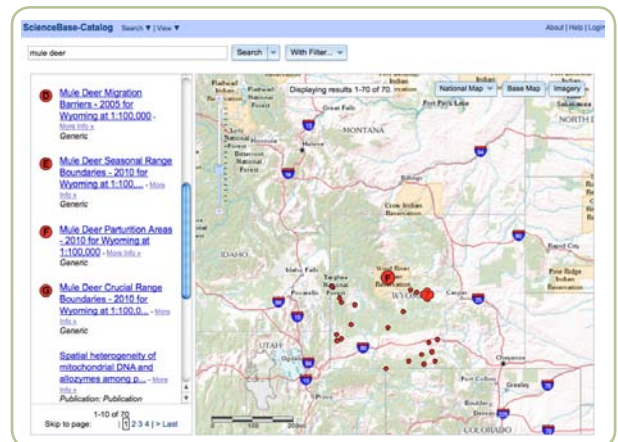
Partnership: Crown Managers Partnership | www.crownmanagers.org/index.php

Data Integration

M McFadzen

9 Landscape Conservation Management and Analysis Portal (LC MAP)

Supported by the Great Northern LCC, this geospatial data discovery and analysis tool was built to support online collaboration and coordination. LC MAP combines open source data search, cataloging, and management tools with the ArcGIS 10 spatial data editing, analysis, and modeling environment to provide a powerful, start-to-finish project management tool. Interaction with the spatial data relies on a suite of web services allowing teams to access and analyze common datasets and provides automated metadata and versioning functions to document project progress. A robust security infrastructure provides fine-tune controls over data access and publication. LC MAP is available at no cost to GNLCC partners and collaborators.



Project contact: Sean Finn, US Fish and Wildlife Service;
sean_finn@usfws.gov

Partnership: Great Northern LCC | www.nrmc.usgs.gov/gnlcc

10 Multi-Dimensional Synthesis of Existing Information



A synthesis of existing information is currently being developed by the Great Northern LCC. This synthesis is aimed to help promote a common understanding of landscape conservation information within the Great Northern area. The synthesis includes: the GNLCC Resource Directory (organizations and initiatives); climate and ecological response (what does existing and projected climate information say and what are expected ecological effects); and monitoring (who is monitoring what).

Project contact: Mary McFadzen, Montana State University;
mmcfadzen@montana.edu

Resource Directory: www.greateryellowstonescience.org/gnlcc

Partnership: Great Northern LCC | www.nrmc.usgs.gov/gnlcc

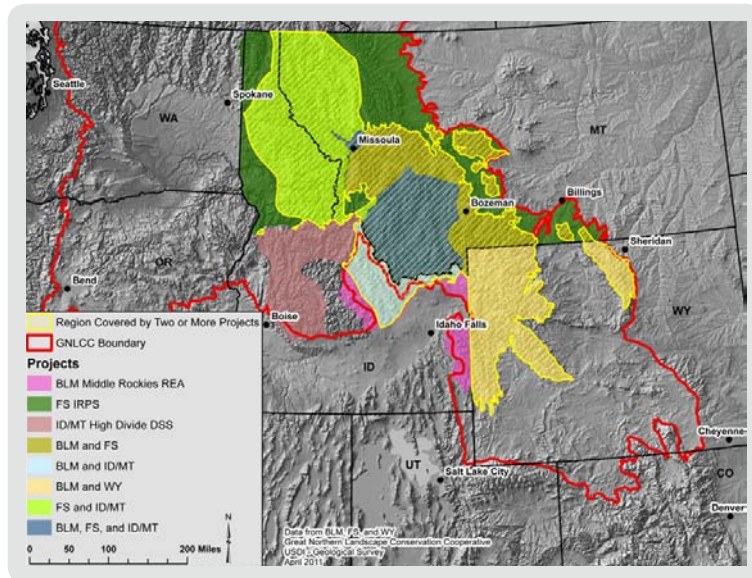
Data Integration

11 Landscape Assessment Demonstration Project

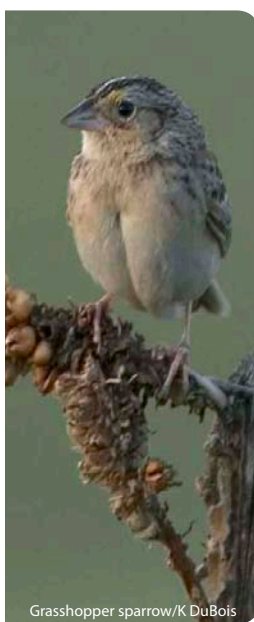
Facilitated by the Great Northern LCC, this collaborative effort aims to improve the efficacy of decision support tools for landscape conservation in the Great Northern area. The outcome will provide transboundary, cross-jurisdictional decision support to diverse stakeholders including resource management, industry, private landholders, and the public. Projects include the BLM's Middle Rockies Rapid Ecoregional Assessment; Western Governors' Association–Decision Support System Projects directed by Idaho Fish and Game, Montana Fish, Wildlife & Parks, and Wyoming Game and Fish; US Forest Service's Integrated Restoration and Protection Strategy; and Heart of the Rockies Initiative.

Project contact: Tom Olliff, National Park Service;
Tom_Olliff@nps.gov

Partnership: Great Northern LCC | www.nrmcs.usgs.gov/gnlcc



12 Species Adaptations to Climate Change: Baseline Data for Grassland, Sagebrush, and Riparian-associated Landbirds in Bird Conservation Region 10



As part of an ongoing region-wide landbird monitoring program, this project will fill data gaps for species of grassland, sagebrush, and riparian habitats in the Montana portion of Bird Conservation Region 10. Project objectives include: the development of a sampling grid that can serve as a framework to design monitoring programs for birds and other taxonomic groups; collaboration with other population modeling efforts; and integration of data to support regional conservation programs.

Project contact: Catherine Wightman, Montana Fish, Wildlife and Parks; cwightman@mt.gov

Website: <http://fwp.mt.gov/wildthings/management/birdConservation>

Partnership: Intermountain Joint Venture | <http://iwjv.org>

Data Integration

13 Landscape Analysis and Monitoring Program for the Crown of the Continent Ecosystem

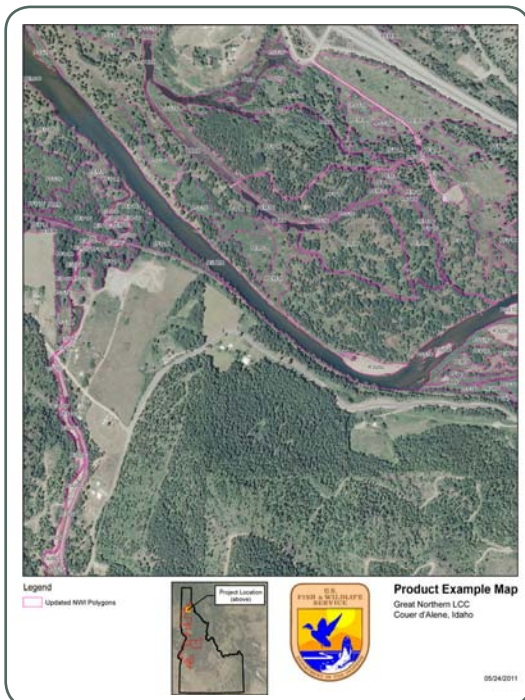
The Crown Managers Partnership is developing a monitoring program that is intended to support the long-term health of the Crown of the Continent Ecosystem (CCE) and provide a scientifically credible foundation for managers to engage in natural resource protection activities. The monitoring strategy will focus on the development and acquisition of geospatial datasets from remote sensing and other GIS sources designed to track changes in habitats and human footprint consistently and reliably across the CCE. This information can then: 1) be evaluated against the range of climate scenarios for the CCE; 2) monitor impacts and vulnerabilities in the face of climate change; and 3) assist managers with determining and implementing strategies for increasing resiliency in the face of climate change and other land stressors.

Project contact: Greg McDermid, University of Calgary; mcdermid@ucalgary.ca

Partnership: Crown Managers Partnership | www.crownmanagers.org



14 National Wetlands Inventory for Idaho and Montana



Updated and completed National Wetlands Inventory (NWI) data is needed to adequately inventory potential habitat availability for wetland dependent wildlife. Periodic updates of such land cover information will greatly help assess net landscape change with climatic parameters and would facilitate understanding of how various wetland habitats within the landscapes may change over time in response to altered climatic conditions. To meet this need, funding for this project is leveraged with US Fish and Wildlife Service dollars to digitize existing hard copy maps according to standard NWI protocols to provide complete coverage of wetlands and riparian habitats across the states of Idaho and Montana.

Project contact: Kevin Bon, US Fish and Wildlife Service; kevin_bon@fws.gov

Website: <http://www.fws.gov/wetlands>